

REMARKS

Status of Claims:

Claims 1-13 are pending in the application. Each claim defines an invention that is novel and unobvious over the cited art. Reconsideration of the outstanding rejections is respectfully requested for the reasons set forth below.

Rejections Under 35 U.S.C. § 103(a):

Claims 1-2, 7-8, 10-11 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lombard (6,796,362) in view of Muneratti (WO 9712709) and further in view of Aoyama (7,051,784) and Flemings (6,645,323) .

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lombard in view of Muneratti and further in view of Aoyama, Flemings, and Carden (6,098,700).

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lombard et al. in view of Muneratti and further in view of Aoyama, Flemings, Carden and Klotzbicher et al (4,212,451).

Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lombard et al. in view of Muneratti and further in view of Carden and Collot et al (6,089,846).

Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lombard et al. in view of Muneratti and further in view of Clark (6,068,043).

Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lombard et al. in view of Muneratti and further in view of Wang (6,994,146).

Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lombard et al. in view of Muneratti and further in view of Peleschka et al (US 2002/0179280).

Claim 1 is hereby amended to recite “wherein said first plunger slidably traverses said second sleeve and at least a portion of said first sleeve.” The Examiner cites Lombard as disclosing a “first plunger 212, 230.” (§ 3, line 6). Claim 1 as amended recites “a first plunger, which is slidably inserted into said plunger-inlet end of the second sleeve, wherein said first plunger slidably traverses said second sleeve and at least a portion of said first sleeve to press the slurry manufactured in the second sleeve.” Lombard does not disclose a plunger that which is inserted into and traverses one sleeve and then is inserted into and traverses at least a portion of a second sleeve. None of the additional art is cited in a manner as to supply the missing teaching.

The applicants respectfully re-allege their previously presented arguments relating to the timing of the application of an electromagnetic field.

The Office Action admits that Lombard in view of WO97/12709 (Muneratti) fails to teach the use of a time control unit for starting and stopping the stirring unit in terms of the pouring of molten metal and crystalline nuclei; however, the Office Action relies on Aoyama for that aspect. Applicant traverses.

First, the Aoyama reference fails to teach anything about applying an electromagnetic field. The Aoyama reference teaches only applying a motion to the melted metal via a mechanical or physical means. The Office Action takes it for granted that the timing of applying a motion is applicable to the timing of applying an electromagnetic field; however, Applicant submits that this is clear evidence of using the Application as a blueprint for a hindsight reconstruction.

Second, the timing taught by the Aoyama reference is different from the required timing of applying an electromagnetic field in the claims of the present Application. Claim 1 as amended requires "an electromagnetic field is applied to the second sleeve from prior to pouring the molten metal in the second sleeve and is stopped when crystalline nuclei are formed in the molten metal." On the other hand, the Aoyama reference, particularly at column 4, lines 39-49, clearly indicates that a molten metal is first loaded and the loaded metal is cooled and "then" a motion is applied to the cooled melted metal "when" at least a part of each melted metal reaches a temperature "below" the liquidus temperature in the course of cooling of the melted metal. Further, Flemings does not cure the defects of Lombard, WO97/12709 and Aoyama.

Therefore, in terms of timing of applying an outside force to a vessel (let alone the fact that the Aoyama reference fails to teach applying an electromagnetic field at all), the Aoyama reference fails to teach "an electromagnetic field is applied to the second sleeve from prior to pouring the molten metal in the second sleeve and is stopped when crystalline nuclei are formed in the molten metal." Thus, for the reasons set forth above, Applicant submits that the cited references individually or together fail to teach or suggest the present claims (1-13) as amended, and therefore, the rejection should be withdrawn.

Conclusion:

In view of the above, consideration and allowance are respectfully solicited.

Accordingly, it is respectfully requested that the foregoing amendments be entered, that the application as so amended receive an examination on the merits, and that the claims as now presented receive an early allowance.

In the event the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

The Commissioner is hereby authorized to charge any fees or credit any overpayment associated with this communication, including any extension fees or fees for the net addition of claims, to Deposit Account No. 02-2135.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'J. A. Evans', written over a vertical line that extends from the signature down to the typed name.

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